

## REMARKS

Claims 1-27 and 32 are rejected. Claims 1 and 26 have been amended. Claims 28-31 have been withdrawn from further consideration. Claims 33-35 are newly added. Claims 1-35 are presently pending in the application. Favorable reconsideration of the application in view of the following remarks is respectfully requested.

The basis for newly added claims 33-35 can be found in Figure 2A and paragraph [0048] of the specification.

### **Rejection under 35 U.S.C. § 103(a) over Richter in view of Gertner and Fish:**

In Section 2-4 of the Office Action dated September 16, 2008, the Examiner has rejected claims 1, 2, 4-8, and 26 under 35 U.S.C. §103(a) as being unpatentable over Richter et al. (Advanced Materials (2000) 12:507-510) in view of Gertner et al. (U.S. Patent Pub. No. 2003/0060873) and further in view of Fish (U.S. Patent Pub. No. 2004/0132220). This rejection is respectfully traversed.

Regarding claims 1 and 26, the cited references fail to teach or suggest all of the claimed limitations. The references do not teach hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes, the probes being positioned such that they cannot come into contact with one another. As indicated on page 4 of the Office Action dated September 16, 2008, Richter et al. fails to teach hybridizing the nucleic acid molecule to one or more sets of two oligonucleotide probes. Furthermore, neither Gertner et al. nor Fish to teach this limitation.

Gertner et al. merely relates encasing a bioactive material in a metallic matrix. Gertner et al. does not teach or suggest hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes as claimed.

The Examiner indicates that Fish discloses a first probe 216 on an electrode 30 and a second probe 214 on an electrically readable particle 226. However, these probes are not positioned such that they cannot come into contact with one another. Particle 226 of Fish is not positioned such that it cannot come into contact with the probes 216. Instead, the particle 226 is in solution and is free contact any probe on the surface of electrode 30. As such the reference fails to teach this claimed limitation.

Further regarding claim 1, the cited references fail to teach or suggest a method of contacting nucleic acid molecule with nickel or nickel alloy. As indicated on pages 4 and 5 of the Office Action dated September 16, 2008, Richter et al. fails to disclose this limitation. The Examiner relies on Gertner et al. to teach this limitation. Referring to Gertner paragraphs [0059] – [0062] and Fig. 5 step 44, the reference merely teaches electroless plating of a substrate surface. The reference does not teach coating a nucleic acid molecule as presently claimed. Gertner merely teaches coating an entire substrate in metal.

Regarding Gertner et al., the reference comprises non-analogous art as it relates to the controlled release of bioactive material. The Examiner indicates that Gertner et al. teaches the use of metal deposition solution has the added advantage of allowing controlled and predictable release of the bioactive material. However, neither the other cited reference nor the instant claims disclose any problems associated with the controlled release of bioactive material. By contrast, the instant claims coat the target molecule with a nickel to improve its conductance. One skilled in the art would have no motivation to utilize a metal deposition that improves the controlled release of bioactive material as taught by Gertner et al. to improve the conductance of target molecules.

Gertner et al. further teaches away from the invention because it would slow the required detection time. The instant invention permits rapid detection of potentially pathological substances where time is often of the essence. However, the slower, timed release techniques of Gertner et al. would result in increased detection times and therefore the reference teaches away from rapid detection.

Claims 2 and 4-8, benefit from dependency of claim 1, which as discussed above, is patentable. As the references fail to teach or suggest all of the claimed limitations, comprise non-analogous art and teach away from the invention, it is respectfully requested that this rejection be reconsidered and withdrawn.

**Rejection under 35 U.S.C. § 102(a) over Gertner:**

On page 6 of the Office Action dated September 16, 2008, the Examiner has rejected claim 26 under 35 U.S.C. §102(a) as being anticipated by Gertner et al. (U.S. Patent Pub. No. 2003/0060873). This rejection is respectfully traversed

As discussed above, Gertner et al. fails to teach or suggest hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes. Therefore, it is respectfully requested that this rejection be reconsidered and withdrawn.

**Rejection under 35 U.S.C. § 103(a) over Richter in view of Gertner, Fish and Tu:**

In Section 5 of the Office Action dated September 16, 2008, the Examiner has rejected claim 3 under 35 U.S.C. §103(a) as being unpatentable over Richter et al. (Advanced Materials (2000) 12:507-510) in view of Gertner et al. (U.S. Patent Pub. No. 2003/0060873) further in view of Fish (U.S. Patent Pub. No. 2004/0132220) and further in view of Tu et al. (U.S. Pat. No. 5,945,527). This rejection is respectfully traversed.

Claim 3 benefits from dependency on claim 1, which as discussed above, is patentable. Therefore, it is respectfully requested that this rejection be reconsidered and withdrawn.

**Rejection under 35 U.S.C. § 103(a) over Fish in view of Richter further in view of Gertner:**

In Section 6 of the Office Action dated September 16, 2008, the Examiner has rejected claims 9, 10, 12-25 and 27 under 35 U.S.C. §103(a) as being unpatentable over Fish (U.S. Pat. Pub. No. 2004/0132220) in view of Richter et al. (Advanced Materials (2000) 12:507-510) and further in view of Gertner et al. (U.S. Patent Pub. No. 2003/0060873). This rejection is respectfully traversed.

Regarding claims 9 and 27, the cited references fail to teach or suggest all of the claimed limitations. As discussed above, none of the cited references teach or suggest hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes, the probes positioned such that they cannot come into contact with one another. Also as discussed above, the Gertner et al. comprises non-analogous art and teaches away from the claimed invention.

Furthermore, there lacks any credible justification for why one of ordinary skill in the art would have arrived at the present invention based on the references of record. To establish a *prima facie* case, the Examiner must provide a basis in the art for arriving at each of the selections in the claims based on foreseeable improved results. See *Ex Parte Atkinson and Benedict* BPAI Appeal No. 20007-3900 (December 18, 2007); and *Ex Parte So and Thomas*

BPAI 2007-3967 (January 4, 2008) which reaffirm the principle of the selection patent noting that the Examiner has the burden of demonstrating that one of ordinary skill in the art would have had to have a reason to arrive at the Applicant's claimed combination from all of the possible combinations. On page 18 of the Office Action dated September 16, 2008, the Examiner indicates that "the methods of Richter and Gertner enable detection of the nucleic acid probe/target complex when the target is hybridized to two probes in the methods and the device taught by Fish." First, neither Richter nor Gertner relate to the detection of nucleic acid molecules. Second, Fish teaches an instrument that detects the presence of an analyte in a sample. Once the analyte is detected the instrument of Fish provides feedback regarding the presence of the analyte. After detection of the sample, there is no need to provide any of the additional processing steps as taught by Richter or Gertner. After detection of the sample, a person of ordinary skill in the art would not modify Fish with the superfluous methods of Richter and Gertner as the desired detection has already occurred and these steps would increase the cost and complexity of the instrument disclosed by Fish. In view thereof, it follows that the subject matter of the claims would not have been obvious over Fish, Richter and Gertner at the time the invention was made.

Claims 10 and 12-25, benefit from dependency of claim 9, which as discussed above, is patentable. As the references fail to teach or suggest all of the claimed limitations, comprise non-analogous art and teach away from the invention, it is respectfully requested that this rejection be reconsidered and withdrawn.

**Rejection under 35 U.S.C. § 103(a) over Fish in view of Richter further in view of Gertner and further in view of Tu:**

In Section 7 of the Office Action dated September 16, 2008, the Examiner has rejected claim 11 under 35 U.S.C. §103(a) as being unpatentable over Fish (U.S. Pat. Pub. No. 2004/0132220) in view of Richter et al. (Advanced Materials (2000) 12:507-510) and further in view of Gertner et al. (U.S. Patent Pub. No. 2003/0060873) and further in view of Tu et al. (U.S. Pat. No. 5,945,527). This rejection is respectfully traversed.

As discussed above, the references fail to teach or suggest hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes, the probes positioned such that they cannot come into contact with one another. Also as discussed above, the references fail to

teach or suggest two electrical conductors and two oligonucleotide probes attached to the electrical conductors. Claim 11 further benefits from dependency on claim 1, which as discussed above, is patentable. Therefore it is respectfully requested that this rejection be reconsidered and withdrawn.

**Rejection under 35 U.S.C. § 103(a) over Fish in view of Zocchi as evidenced by Richter:**

In Section 8 of the Office Action dated December 11, 2007, the Examiner has rejected claims 9, 12 and 16-19 under 35 U.S.C. §103(a) as being unpatentable over Fish (U.S. Pat. Pub. No. 2004/0132220) in view of Zocchi et al. (U.S. Pat Pub. No. 2004/0241699) as evidenced by Richter et al. (Advanced Materials (2000) 12:507-510). This rejection is respectfully traversed.

As discussed above, Fish fails to teach or suggest hybridizing a nucleic acid molecule to one or more sets of two oligonucleotide probes, the probes positioned such that they cannot come into contact with one another. Also as discussed above, Fish fails to teach or suggest two electrical conductors and two oligonucleotide probes attached to the electrical conductors. Neither Zocchi nor Richter teach these limitations. Therefore, it is respectfully requested that this rejection be reconsidered and withdrawn.

**Conclusion:**

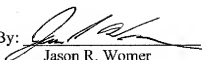
It is believed that the foregoing is a complete response to the Office Action and that the claims are in condition for allowance. Favorable reconsideration and early passage to issue is therefore earnestly solicited.

Applicant appreciate the opportunity to call the Examiner but believes that this amendment to the claims and the forgoing remarks fully address the issues raised by the Examiner. On the other hand, the Examiner is invited to call the undersigned attorney if he has any matters to address that will facilitate allowance of the application.

In the event that Applicant has overlooked the need for an extension of time, additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefore and authorize that any changes be made to Deposit Account No.: 50-3010.

Respectfully submitted,

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